FIVE YEAR REVIEW REPORT

NORTHSIDE LANDFILL SUPERFUND SITE

ZIONSVILLE,
INDIANA

Pursuant to CERCLA

Prepared by:
United States Environmental Protection Agency
Region 5
Chicago, Illinois

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Superfund Division, Region 5

9-3-04

Date

FIVE YEAR REVIEW REPORT
EXECUTIVE SUMMARY
SEPTEMBER, 2004

NORTHSIDE LANDFILL SUPERFUND SITE

ZIONSVILLE,
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The completion of the current five year review confirms that the Northside Landfill Superfund Site remains protective of human health and the environment. The components of the remedy selected in the 1987 Northside Landfill Site Record of Decision and 1991 Record of Decision Amendment have been implemented under the 1991 RD/RA Consent Decree. The Site landfill cap, hydraulic isolation wall, and combined leachate/on-site groundwater collection system are functional, operational and effective, with post closure operation and maintenance assuring protectiveness. The Site monitoring program as well as restrictions for Site access, use of landfill, and use of on-site groundwater remain in place.

This is the second five year review for the Northside Landfill Site. The first five year review was completed and signed in September 1999. Most of the maintenance done at the Northside Landfill Site since the last five year review in 1999 has been routine scheduled maintenance. Other maintenance includes the changing of security fence locks and the replacement of 24 landfill gas turbine ventilators in 2003.

The Northside Landfill Group should continue to maintain and monitor the hazardous waste cap, hydraulic containment wall, groundwater/leachate collection and storage system, and groundwater monitoring network at the Site in order to assure that contaminants are contained. Groundwater/ leachate should be trucked off-site and disposed as needed to ensure that an inward gradient is maintained across the hydraulic isolation wall. Tree planting scheduled to occur later in 2004 should assist in providing an inward hydraulic gradient. Semi-annual and annual groundwater monitoring sampling, groundwater/leachate batch sampling, cap maintenance and gas vent sampling should continue to assure that the system is operating properly, and the remedy remains operational and functional.

Five Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Northside Sanitary Landfill

EPA ID *(from WasteLAN)*: IND050530872

Region: 5	**State:** IN	**City/County:** Zionsville, Boone

SITE STATUS

NPL status: X Final _ Deleted _ Other (specify) _____

Remediation status (choose all that apply): _ Under Construction X Operating _ Complete

Multiple OUs?* _ YES X NO	**Construction completion date:** 9/03/96

Has site been put into reuse? _ YES X NO

REVIEW STATUS

Lead agency: X EPA _ State _ Tribe _ Other Federal Agency _____

Author name: Jeff Gore

Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 5

Review period:** 4/15/04 to September, 2004

Date(s) of site inspection: June 16, 2004

Type of review:

X Post-SARA _ Pre-SARA _ NPL-Removal only
_ Non-NPL Remedial Action Site _ NPL State/Tribe-lead
_ Regional Discretion

Review number: _ 1 (first) X 2 (second) _ 3 (third) _ Other (specify) _____

Triggering action:

_ Actual RA Onsite Construction at OU #___ _ Actual RA Start at OU# 1
_ Construction Completion X Previous Five-Year Review Report
_ Other (specify) _____

Triggering action date ***(from WasteLAN)***: 9/15/1999

Due date ***(five years after triggering action date)***: 9/15/2004

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

U. S. Environmental Protection Agency
Region 5
Five Year Review
Northside Landfill Superfund Site
Zionsville, Indiana
September 2004

I. Introduction

The United States Environmental Protection Agency (U. S. EPA) Region 5 has conducted a five year review of the remedial actions implemented at the Northside Landfill Superfund Site in Zionsville, Indiana. The review was conducted between April 2004 and September 2004. This report documents the results of the five year review. The purpose of five year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five year review reports. In addition, five year review reports identify issues found during the review, if any, and make recommendations to address them.

This review is required by statute. U. S. EPA performs statutory reviews on remedies selected that result in hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

This is the second five year review for the Northside Landfill Superfund Site. The first five year review was completed on September 15, 1999. The date for the current five year review is triggered by the completion of the September 1999 review. Both reviews are based on the initiation of the remedial action response date for the Site which was September 1994.

II. Site Chronology

Table 1 lists the chronology of events for the Northside Landfill Superfund Site.

Table 1: Chronology of Site Events

Date	Event
1981	Initial discovery of problem
1983	Proposed for NPL listing
1984	NPL final listing
1984	Remedial Investigation/FS initiated
1987	Remedial Investigation/FS completed
1987	ROD signed
1991	ROD amendment
1991	RD/RA Consent Decree
1994	Remedial Action Start
1996	Remedy construction completion
1999	First Five Year Review
2004	Tree planting (scheduled)

III. Background

A. Physical Characteristics

The Northside Landfill (NSL) Superfund Site is a privately owned 181 acre property in which the landfill occupies approximately 65 acres (Refer to Site figures). The Site is located on the east side of U. S. 421 approximately 8 miles northwest of the intersection of U. S. 421 with Interstate 465, and one mile south of the junction of U. S. 421 and State Route 32. The nearest town is Zionsville, Indiana which is about six miles south of NSL.

B. Land and Resource Use

The landfill is located in a somewhat rural area, and is bounded on the south and east by woodlands. The closest residences in the vicinity are located north and west of the Site. Finley Creek flows along the eastern and southern boundaries of the Site. The Enviro-Chem Superfund Site is located just west of Northside Landfill, and a non-hazardous landfill is located just north. Enviro-Chem and Northside Landfill are separated by an unnamed ditch that flows south into Finley Creek.

C. History of Contamination

It appears from area photos that landfill operations began sometime between 1955 and 1962. Beginning in the early 1970's, Indiana inspectors began to document numerous operational deficiencies including failure to cover refuse, surface burning, underground fires and unapproved disposal of wastes. Unapproved wastes included paint sludges, waste oils, acids and spent acids. NSL applied to USEPA to operate as a hazardous waste landfill in 1980. By 1981 NSL had already accepted at least 16 million gallons of hazardous substances.

D. Initial Response

A number of violation notices, compliance agreements and orders were issued to NSL during the 1980s until a Record of Decision was signed in 1987. Because of continuing violations and disagreements between the agencies and NSL, a ROD amendment was issued in 1991 before the NSL responsible parties agreed to a RD/RA Consent Decree (CD) later that year. The primary reason for the 1991 ROD amendment was to reflect the decision to separate the remedial activities at NSL from the adjacent Environmental Conservation and Chemical Corporation Site (ECC). Therefore, ECC activities were included in the 1987 ROD for NSL but not in the 1991 ROD amendment or 1991 Consent Decree.

E. Basis for Taking Action

Remedial planning began at NSL as the Site was proposed for the National Priorities List on September 8, 1983. The Site became a final NPL listing on September 21, 1984. A remedial investigation was carried out from February 1984 to September 1987. The significant results of the RI at the NSL Site included:

- The hydrogeologic pathways below NSL involve a zone of glacial till with sand and gravel lenses just below the surface. A confining layer separates this pathway from a deeper aquifer containing sand and gravel.

- Groundwater directly below NSL generally travels south and discharges into Finley Creek just south of the Site. It also discharges at times into an unnamed ditch just west of the Site. There is no known off-site groundwater contamination. Because these surface waters are discharge areas for the on-site groundwater, it is difficult to separate the two when analyzing contamination at NSL.

- In the glacial till area, contamination was found on all sides of the landfill. Analysis of the groundwater revealed volatiles such as tricloroethene, semi-volatiles, pesticides and inorganics.

- Finley Creek and the unnamed ditch receive contaminants from NSL through surface water runoff and groundwater migration. Contaminants in the surface water may volatilize, degrade, precipitate or absorb to sediments, or remain in solution and be transported downstream to Eagle Creek.

- Leachate often infiltrates through the contaminated soil and debris migrating into the glacial till layer of the groundwater. Leachate also seeps from the side slopes of the landfill and discharges to the unnamed ditch and Finley Creek.

- Soil samples were not taken below the landfill area but samples taken in the subsurface around the landfill indicated several areas of contamination. Potential future erosion of the landfill surface could result in exposure and migration of contaminants within the landfill.

The 1987 ROD and 1991 ROD amendment prepared by USEPA and IDEM listed the remediation goals for the NSL Site. These goals included minimizing risk to public health and environment from direct contact, inhalation or ingestion of NSL contaminants; controlling groundwater to minimize off-site migration of contamination resulting from NSL seeps; minimizing NSL leachate seeps to off-site groundwater and surface water pathways; controlling and eliminating contamination in surface water discharges; and implementing access restrictions at the NSL site property.

IV. Remedial Actions

A. Remedy Selection

The components of the remedial action listed in the NSL 1987 ROD and 1991 ROD amendment

include a RCRA hazardous waste performance cap with gas venting; a hydraulic isolation wall on the south and west sides of the landfill; a combined leachate/on-site groundwater collection system; a transfer station for collection and storage of leachate/on-site groundwater to be trucked for disposal to an off-site treatment plant; access restrictions; and a groundwater and leachate monitoring program.

B. Remedy Implementation

A Consent Decree was entered in the Southern District Court of Indiana in November 1991. Under this Consent Decree, a group of Responsible Parties agreed to conduct the remedial design (RD) and complete the remedial action (RA) at the Northside Landfill Site.

- The landfill cap was constructed so as to minimize the infiltration of precipitation into the landfill while encasing the waste materials. The cover system consists of a multi-layered soil cap designed to meet RCRA performance criteria for closure of a Subtitle C, Hazardous Waste Landfill. From bottom to top the layers of the cap include a soil barrier layer; a synthetic drainage composite layer on the side slopes and 12-inch sand drainage layer with filter fabric on slopes less than 9 percent grade; general fill; and seeded top soil. The cap was designed to meet a minimum soil barrier layer permeability of 1 x 10(- 7) cm/ sec.

  The landfill cap venting system was constructed to provide for the passive venting of gasses generated by natural degradation of landfill wastes. The system consists of three gas collection trenches installed beneath the cover system and five vertical well vents through the cover to provide controlled gas release to the atmosphere. Liquids and gasses present within the landfill can be monitored using the monitoring access ports included with each gas well vent.

  The landfill storm water control system is based on a 25-year 24-hour storm event. Terraces and discharge flumes have been designed to effectively control the flow of storm water from the landfill surface to the base of the landfill. A drainage ditch along the eastern and northern landfill toe has been constructed to direct water flow to Finley Creek and Unnamed Ditch on the southern and western sides of the landfill.

- The hydraulic isolation wall was constructed along the southern and western boundaries of the landfill and is designed to isolate the upgradient leachate/ on-site ground water collection system from adjacent surface-water influences; serve as a secondary containment barrier to minimize movement of ground water away from the Site; and minimize any potential back-flow of groundwater derived from Finley Creek into the landfill area. The design permeability for the hydraulic isolation wall of 1 x 10(-7) cm/sec is based on the permeability of the landfill cap. The wall is a minimum of 3 feet thick and is deep enough to ensure it is below the shallow surface sand lenses of the aquifer as well as the adjacent Finley Creek depth.

- The combined leachate/on-site groundwater collection system includes a shallower trench system for leachate collection on the north, northwest and east sides of the landfill, and a deeper trench system for combined leachate/on-site groundwater collection on the south and west sides of the landfill. The shallow trench system was constructed 0 to 5 feet into the native soils above the natural groundwater table to remove leachate at the landfill perimeter. A vertical sump has also been installed in the northeast comer of the waste area to facilitate periodic leachate removal. The deeper system on the south and west sides of the landfill was installed to depths up to 17 feet to intercept and collect groundwater passing underneath the fill area as well as any leachate. The leachate/on-site groundwater collection system is designed to gravity drain to a collection sump and lift station located in the southwest comer of the landfill.

- The transfer station for collection, storage and off-site disposal of leachate/ on-site groundwater begins at a sump with 800 gallons of storage capacity and a base that extends approximately 25 feet below ground surface. A submersible pump is installed in the sump to transfer the liquids to an above-ground 30,000 gallon storage tank. The storage tank sits in a transfer station building at the southwest corner of the Site that will allow for tanker trucks to periodically load the liquids and then dispose of them at an off- site treatment plant.

- Access restrictions have been imposed to eliminate direct access to the Site, and to control both future development on the Site as well as use of groundwater discharged from the Site. Direct access is prevented by a permanent fence installed around the landfill property. Future development and groundwater use controls were accomplished by imposing deed restrictions for the parcels of property involved.

C. Systems Operations/Operations and Maintenance

Remedial objectives of system operations at the Northside Landfill Superfund Site include the elimination of any excess soil ingestion, inhalation, direct contact or groundwater leachate human health risks by containment and treatment of contaminated soils and sediments. Groundwater and surface water remedial objectives are the attainment of primary and secondary maximum drinking water contaminant levels (MCLs). and the elimination of any excess life-time cancer risk at Finley Creek.

Excess human health risks due to contaminated soils and sediments are being addressed by operation and maintenance of the soil remedy at the Site. The RCRA hazardous waste performance cap completed in 1996 provides adequate containment of the on- site soil contamination. The landfill cap venting system allows for gasses which degrade naturally from the landfill to be emitted to the atmosphere. Soil containment and treatment operations at the Northside Landfill hazardous waste landfill cap are outlined in the Site Operation and Maintenance Plan. Maintenance includes periodic mowing and soil grading of the landfill cap, and monitoring and occasional replacement of landfill gas vents.

The Site hydraulic isolation wall, leachate/on-site groundwater collection system and storage tank have been in place since 1996. The leachate/on-site groundwater collection system is monitored and periodically pumped to a storage tank in order to maintain an inward gradient across the Site hydraulic isolation wall. The leachate/groundwater in the storage tank is then trucked to an off-site treatment works facility. Recent semi-annual monitoring has shown that certain inorganic compounds and volatile contaminant levels are above groundwater and surface water clean-up objectives outlined in the 1991 ROD amendment and 1991 CD Statement of Work (SOW).

V. Progress Since Last Five Year Review

This is the second five year review for the Northside Landfill Superfund Site. The first five year review report was completed and signed in September 1999. Recommendations during the 1999 review included the following:

The Northside Landfill Group should continue to maintain and monitor the hazardous waste cap, hydraulic containment wall, groundwater/leachate collection and storage system, and groundwater monitoring network at the Site in order to assure that contaminants arc contained.

Groundwater leachate should be trucked off-site and disposed as needed to ensure that an inward gradient is maintained across the hydraulic isolation wall. Semi-annual and annual groundwater monitoring sampling, groundwater/ leachate batch sampling, cap maintenance and gas vent sampling should continue to assure that the system is operating properly and the remedy remains operational and functional. Current and future monitoring well sampling data should be analyzed to determine if the exceedences of certain inorganic compounds

above clean-up standards are a result of natural conditions at the Site or some on-site contamination. This concern over inorganics such as arsenic, iron, chromium VI and lead exceeding Site clean-up standards is the primary factor that needs to be addressed before the Superfund remedial action can be completed at Northside Landfill.

Most of the maintenance done at the Northside Landfill Site since the last five year review in 1999 has been routine scheduled maintenance. Other maintenance includes the changing of security fence locks and the replacement of 24 landfill gas turbine ventilators in 2003.

Site operation and maintenance monitoring continues to show that inorganic compounds exceed Site clean-up standards.

A proposal has been approved to plant trees along the southern boundary of the landfill next to the perimeter road. This work is scheduled to be completed later in 2004.

VI. Five Year Review Process

A. Administrative Components

The Northside Landfill Site five year review was prepared by Jeff Gore, U. S. EPA Remedial Project Manager for the Site. Mike Habeck, State Project Manager with the Indiana Department of Environmental Management (IDEM), also assisted with the review. The five year review consisted of a Site inspection and review of relevant documents.

B. Community Involvement

The completed report will be available in the Site information repository and the U. S. EPA website for public view. An advertisement notice regarding the five year review process was placed in the Zionsville Times Sentinel newspaper on August 31, 2004 for public viewing.

Community relations ongoing at the Northside Landfill Site include the comprehensive sampling program currently being carried out to assure that the residents human health and environment is protected, and contaminants are contained and treated on the Site.

C. Document Review

Documents reviewed in preparation of this five year review report include the following:

1) Five Year Review Report, Northside Landfill Site, September 1999

2) RD/RA Consent Decree, Northside Landfill Site, November 1991

3) Record of Decision Amendment, Northside Landfill Site, July 1991

4) Record of Decision. Northside Landfill Site, September 1987

5) Northside Landfill Site file, and operation & maintenance documents

The following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the ROD. ROD Amendment and previous five year review for the Site, and were reviewed for changes that could affect protectiveness:

- Safe Drinking Water Act Maximum Contaminant Levels (MCLs);
- Resource Conservation and Recovery Act (RCRA) hazardous and solid waste disposing and storage regulations;

- Clean Water Act (CWA)
- Department of Transportation (DOT) hazardous materials rules
- State of Indiana requirements for soil, groundwater, surface water and air compliance;

D. Data Review

The Northside Landfill Consent Decree operation and maintenance sampling has been completed and reported at the Site through 2003. Eight groundwater monitoring wells, additional piezometer wells and manhole wells are sampled and analyzed during the semi-annual and annual sampling programs. Reported. results in 2003 show that the groundwater concentrations of inorganic compounds such as arsenic, iron, chromium VI and lead, as well as benzene remain above clean-up objectives listed in the ROD amendment and CD Statement of Work.

The remedy selected in the ROD has been implemented and remains functional, operational and effective. As long as the Northside Landfill Group contractors continue to maintain and monitor the Site hazardous waste cap and groundwater containment system, the remedy should contain the soil contamination and ensure that no surface water contamination or groundwater plume develop. The RCRA Subtitle C compliant hazardous waste cap and Site security fence insure that source area contamination is contained, and a permanent barrier exists to prevent human contact. Although no off-site groundwater plume exists, on-site groundwater monitoring wells with inorganic compound and benzene levels above clean-up objectives listed in the ROD amendment and CD Statement of Work remain a Site operation and maintenance concern.

E. Site Inspection

The Northside Landfill Site has been visited a number of times by the current remedial project manager since the last five year review. The most recent visit was performed on June 16. 2004, in order to inspect the Site for this five year review. Jeff Gore of U. S. EPA and Mike Habeck of IDEM were present during the June inspection.

It was raining during most of the Site inspection, and so was difficult to spend much time walking over the property. A walk was taken around the perimeter of the landfill, and a vehicle was driven to the top of the landfill where a brief walk was taken.

The Site was found to be in good condition during the inspection, recently mowed and free of debris. There were no signs of excessive erosion along the landfill cap. The gas turbine ventilators on top of the landfill were operating properly, and the groundwater monitoring wells look secured. The Site showed no signs of any vandalism or other disturbances. The access fence was properly in place with the gate locked.

The issues found during the five-year review inspection included:

1) The area located to plant trees along the southern boundary of the landfill is narrow, so concern should be taken to assure planting does not interfere with the landfill design and operation & maintenance.

2) The landfill gas turbine ventilators have a tendency to corrode and stop spinning, so should be inspected annually and changed as needed.

VII. Assessment

The following questions address the protection of human health and the environment of the remedy at the Northside Landfill Superfund Site.

Question A: Is the remedy functioning as intended by the decision documents? Yes.

- **Implementation of Institutional Controls and Other Measures**: The 1991 CD SOW included institutional controls implementing deed and access restrictions to prevent development of the Site within the fenced area, and to assure the integrity of the landfill and other components of the remedial action. Site access and use is restricted with a security perimeter fence, as is the installation of groundwater drinking wells on any portion of the Site property. These controls and restrictions are best effort, and are to remain in place to prevent property access and contaminated groundwater use is relation to the remedial action.

- **Remedial Action Performance**: The remedy selected in the ROD has been implemented and remains functional, operational and effective. With continued maintenance and monitoring of the Site hazardous waste cap and groundwater containment system, the remedy should contain the soil contamination and ensure that no surface water contamination or groundwater plume develop. The RCRA Subtitle C compliant hazardous waste cap and Site security fence insure that source area contamination is contained, and a permanent barrier exists to prevent human contact. Although no off-site groundwater plume exists, on-site groundwater monitoring wells with inorganic and benzene levels above clean-up objectives listed in the ROD Amendment and CD Statement of Work remain a concern.

- **System Operations/O&M:** The Site hazardous waste cap and vents, hydraulic containment wall, groundwater/leachate collection and storage system, and groundwater monitoring network at the Site arc maintained and monitored. Groundwater/leachate is trucked off-site and disposed as needed to ensure that an inward gradient is maintained across the hydraulic isolation wall. Semi-annual and annual groundwater monitoring sampling, groundwater/leachate batch sampling, cap maintenance and gas vent sampling continue to assure that the system is operating properly and the remedy remains operational and functional. 24 landfill gas turbine ventilators were replaced in 2003, and trees are scheduled to be planted at the south perimeter of the landfill later in 2004.

- **Cost of System Operations/O&M**: Current annual O&M costs at the Northside Landfill Site are primarily contributed to operation, maintenance and management of the Site landfill, and groundwater monitoring systems. 2004 Site estimated annual costs are approximately $ 250,000. Other costs involve U. S. EPA and IDEM project manager time and travel related to the Site, and unexpected Site construction or maintenance.

- **Opportunities for Optimization**: Planting trees along the south perimeter of the landfill, scheduled to be completed later in 2004, may allow for less landfill groundwater/ leachate pumping to obtain the desired inward hydraulic gradient. Proper landfill gas turbine ventilator operation may allow for less volatile compound migration to the leachate and groundwater.

- **Early Indicators of Potential Remedy Issues**: There is some concern about increasing contaminant concentrations in monitoring well MW- 6. Additional data may be required after trees are planted later this year. The Site remedy should continue to provide proper protectiveness for the foreseeable future.

Question B: Are the assumptions used at the time of remedy selection still valid? Yes.

- **Changes in Standards and To Be Considered**: Standards outlined in the 1987 Northside Landfill ROD. 1991 ROD Amendment and 1991 Consent Decree are still valid at the Site.

- **Changes in Exposure Pathways**: No new exposure pathways have been discovered at the Northside Landfill Site since the last five year review in 1999.

- **Changes in Toxicity and Other Contaminant Characteristics**: Toxicity and other factors for contaminants of concern have not changed since the last five year review in 1999.

- **Changes in Risk Assessment Methodologies**: Risk assessment methodologies used at the Northside Landfill Site since the last five year review in 1999 have not changed, and do not call into question the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy? No.

No other information has come available that could question the remedy at Northside Landfill. The Site remedy remains protective of human health and the environment.

VIII. Issues

Issues that were discovered during the five year review process and the Northside Landfill Site inspection are noted in Table 2.

Table 2: Identified Issues

Five Year Review Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Landfill gas turbine ventilators should be inspected annually and changed as needed.	N	N
Issues Noted at Site Inspection		
Tree planting on the south perimeter of the landfill should be done with care, as not to impact the Site remedy.	N	N

IX. Recommendations and Follow-up Actions

The following recommendations and follow-up actions address the issues which were identified during the five year review and Site inspection:

1) Annual inspections of the landfill gas turbine ventilators are needed, so that they can be replaced after becoming corroded and inoperable.

2) U. S. EPA and Indiana DEM project managers should provide oversight of the Site tree planting scheduled for later in 2004, to assure that the Site remedy and operation & maintenance is not impacted.

Table 3 : Recommendations and Follow-up Actions

New Five Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N) Current, Future
Site tree planting	Assure EPA and IDEM oversight	Northside Landfill Group	EPA/IDEM	2004	N, N
Ongoing Site Issues					
Landfill gas turbine ventilators	Annual inspections & replacement as needed	Northside Landfill Group	EPA/IDEM	2004/ongoing	N, N

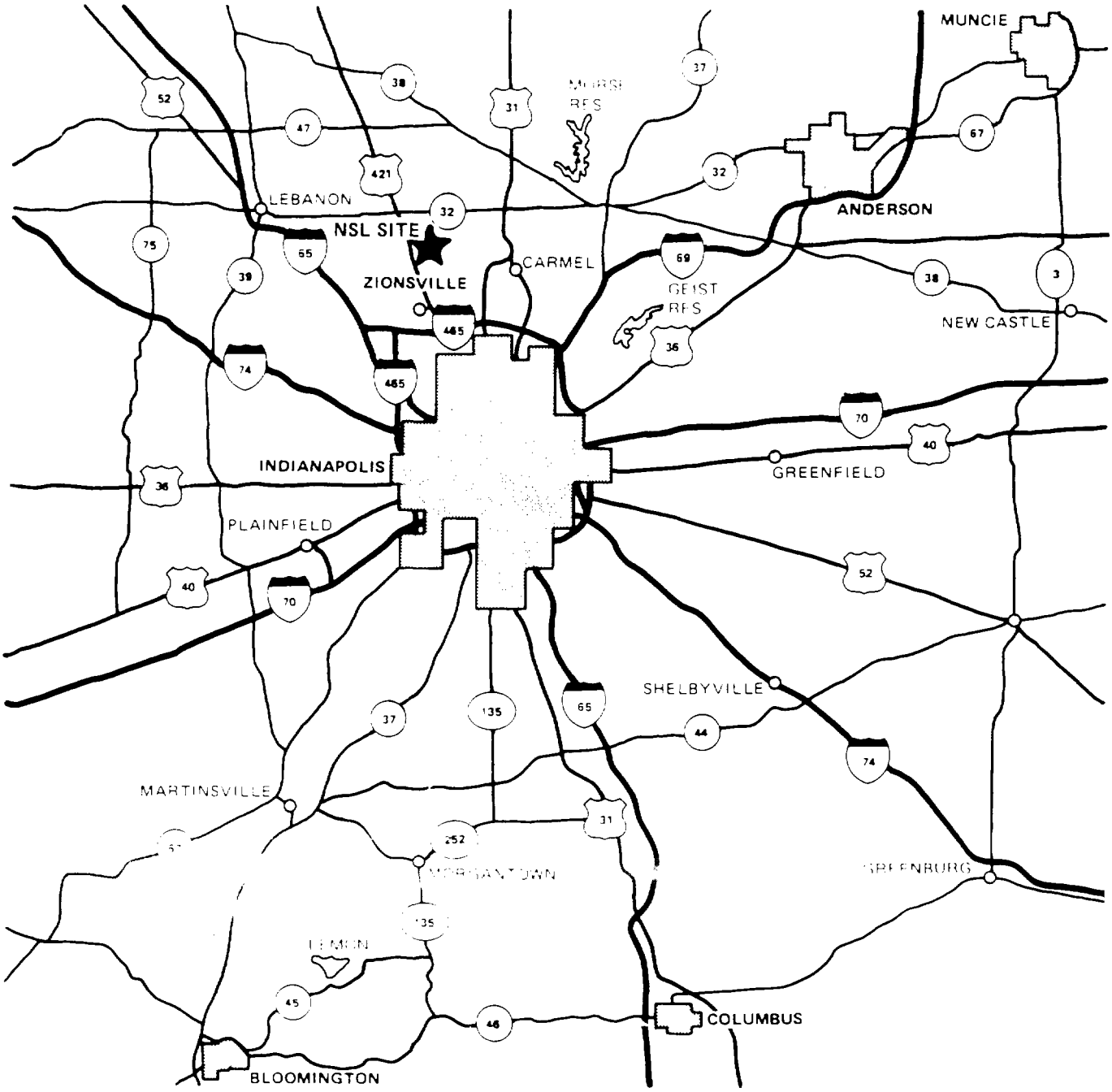
X. Protectiveness Statements

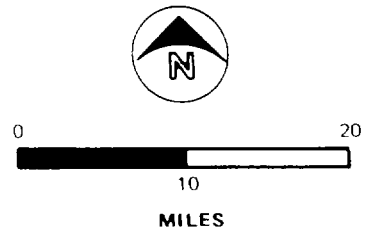
Completion of the current five year review confirms that the Northside Landfill Superfund Site remains protective of human health and the environment, and there are no known exposure pathways that could result in unacceptable health risks. The components of the remedy selected in the 1987 Northside Landfill Site ROD and 1991 ROD Amendment have been implemented tinder the 1991 Consent Decree.

The Site landfill cap and hydraulic isolation wall are functional, operational and effective, with post closure maintenance assuring protectiveness. The Site leachate, on-site groundwater collection system continues to operate as needed to provide an inward hydraulic gradient. Tree planting scheduled to occur later in 2004 should assist in providing an inward gradient. Monitoring under the ongoing operation and maintenance program provides data to assure protectiveness. Restrictions for Site access, use of the landfill , and use of Site groundwater remain in place.

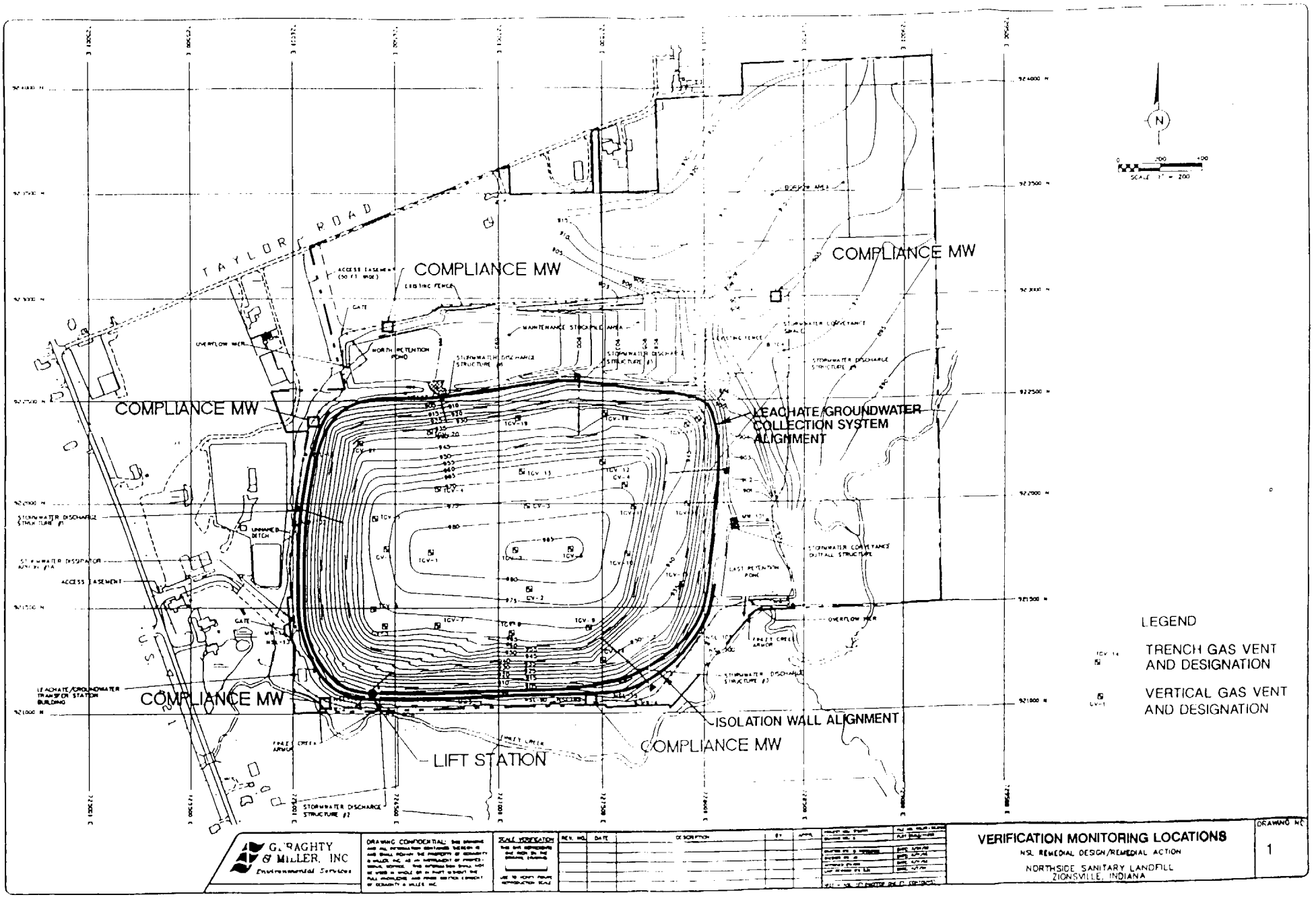
XI. Next Review

The Northside Landfill Superfund Site requires ongoing statutory five year reviews. The next review will be scheduled to be completed by September 2009, and will be five years from the completion date of this report. The completion date of the current five year review is the signature date shown on the cover attached to the front of this report.





LOCATION MAP
NSL FS



GEraghty & Miller, Inc
Environmental Services

VERIFICATION MONITORING LOCATIONS
NSL REMEDIAL DESIGN/REMEDIAL ACTION
NORTHSIDE SANITARY LANDFILL
ZIONSVILLE, INDIANA

DRAWING NO. 1